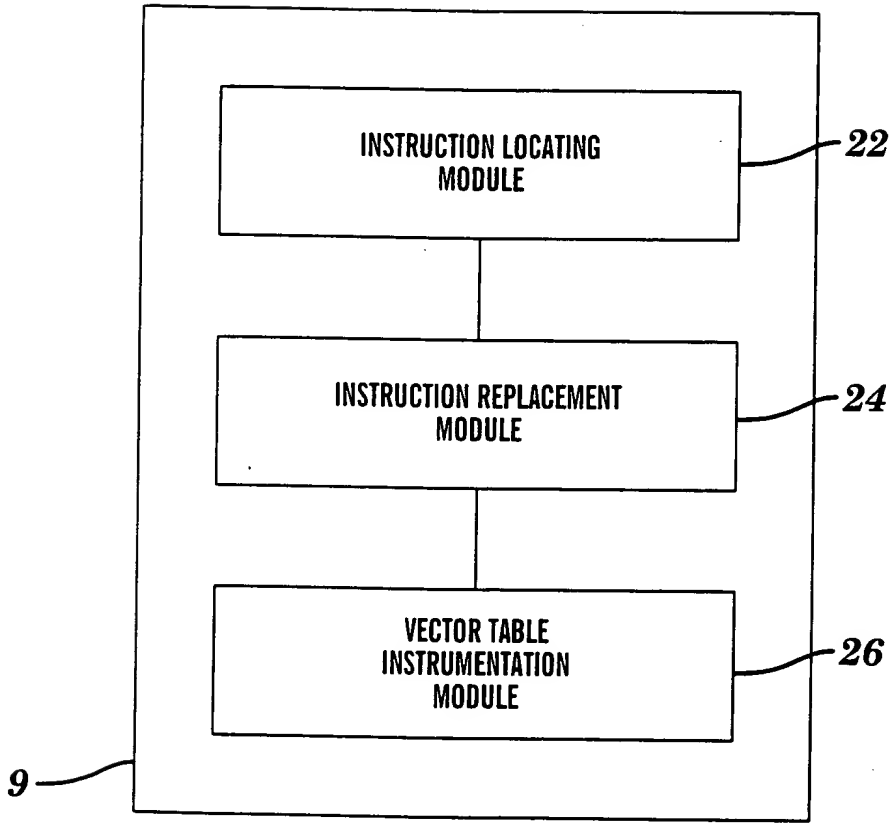
INSTRUCTION LOCATING MODULE
22
INSTRUCTION REPLACEMENT MODULE
24
VECTOR TABLE INSTRUMENTATION MODULE
26
9

FIG. 1

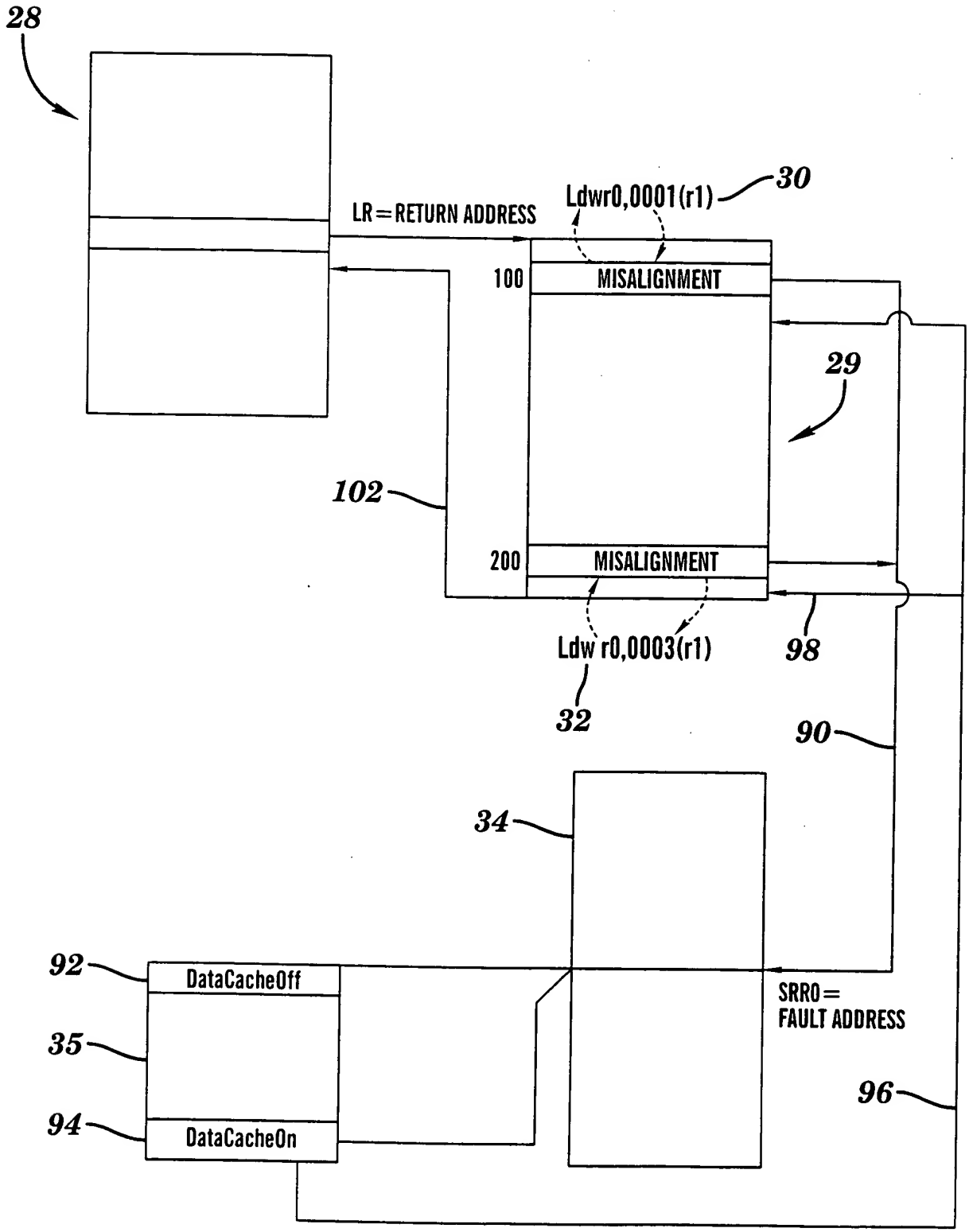
28
LR = RETURN ADDRESS
Ldwr0,0001(r1)
30
100
MISALIGNMENT
29
102
200
MISALIGNMENT
Ldw r0,0003(r1)
32
98
90
34
92
DataCacheOff
35
94
DataCacheOn
SRR0 =
FAULT ADDRESS
96

FIG. 2

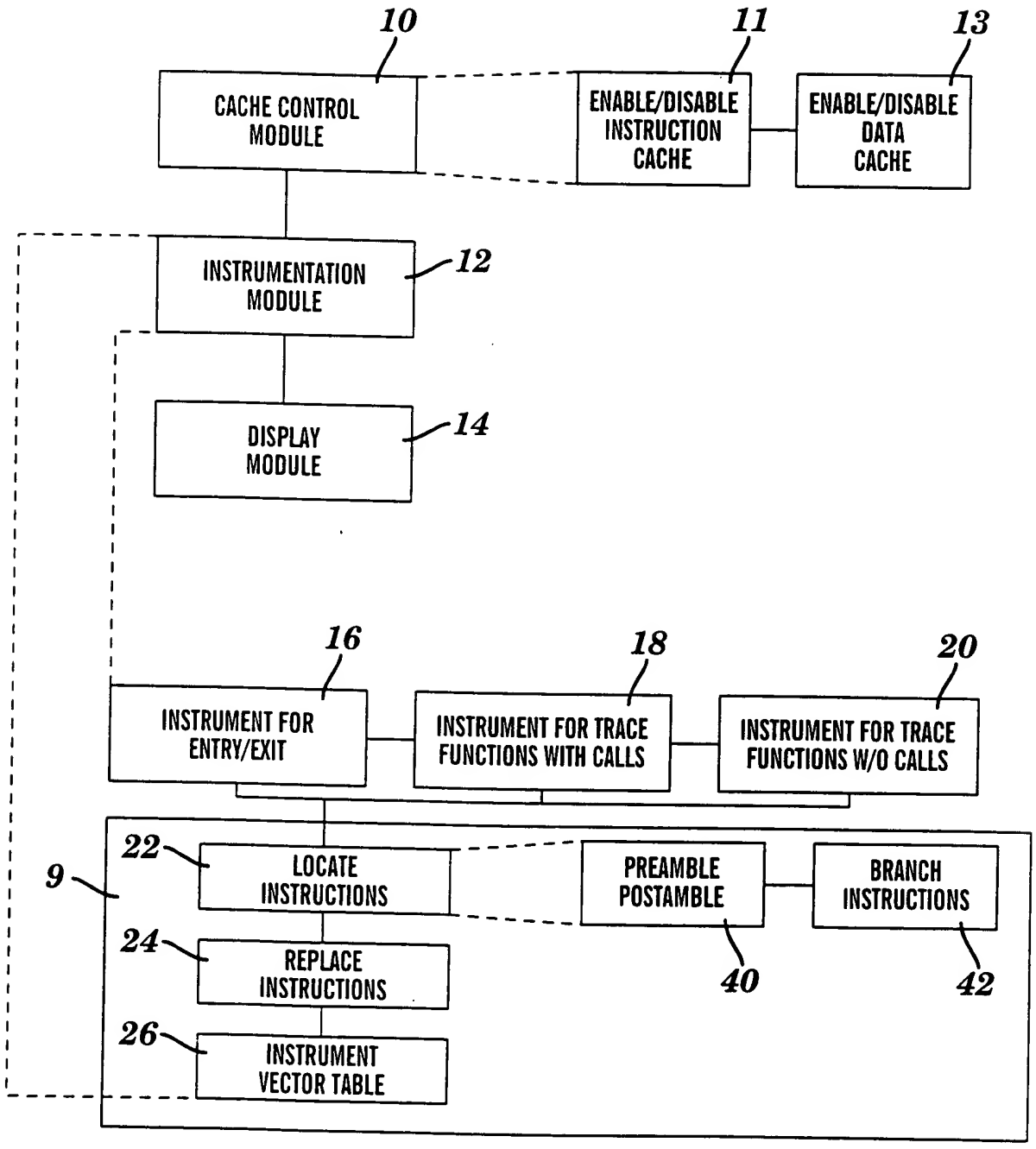
10
11
13
CACHE CONTROL MODULE
ENABLE/DISABLE INSTRUCTION CACHE
ENABLE/DISABLE DATA CACHE
INSTRUMENTATION MODULE
12
DISPLAY MODULE
14
16
18
20
INSTRUMENT FOR ENTRY/EXIT
INSTRUMENT FOR TRACE FUNCTIONS WITH CALLS
INSTRUMENT FOR TRACE FUNCTIONS W/O CALLS
9
22
LOCATE INSTRUCTIONS
PREAMBLE POSTAMBLE
BRANCH INSTRUCTIONS
24
REPLACE INSTRUCTIONS
40
42
26
INSTRUMENT VECTOR TABLE

FIG. 3

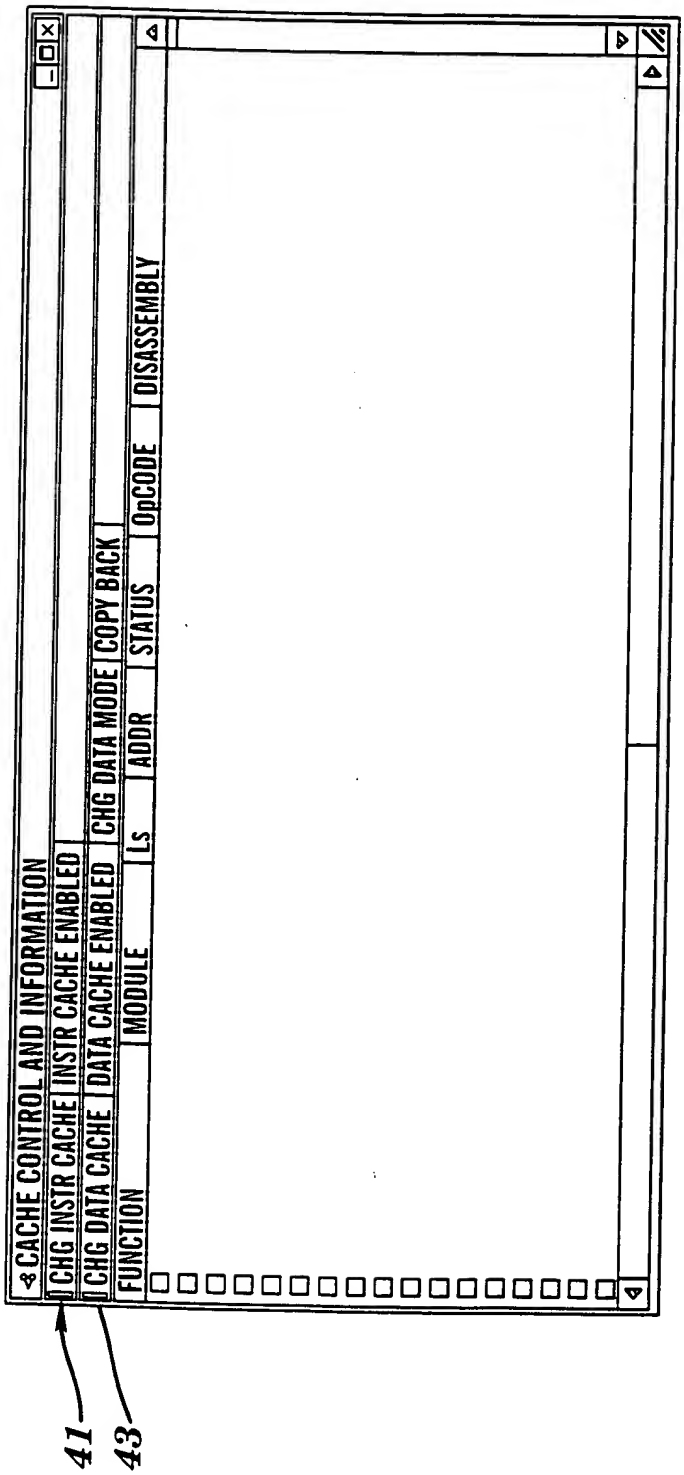
CACHE CONTROL AND INFORMATION
CHG INSTR CACHE
INSTR CACHE ENABLED
CHG DATA CACHE
DATA CACHE ENABLED
CHG DATA MODE
COPY BACK
FUNCTION
MODULE
LS
ADDR
STATUS
OpCODE
DISASSEMBLY
41
43

FIG. 4

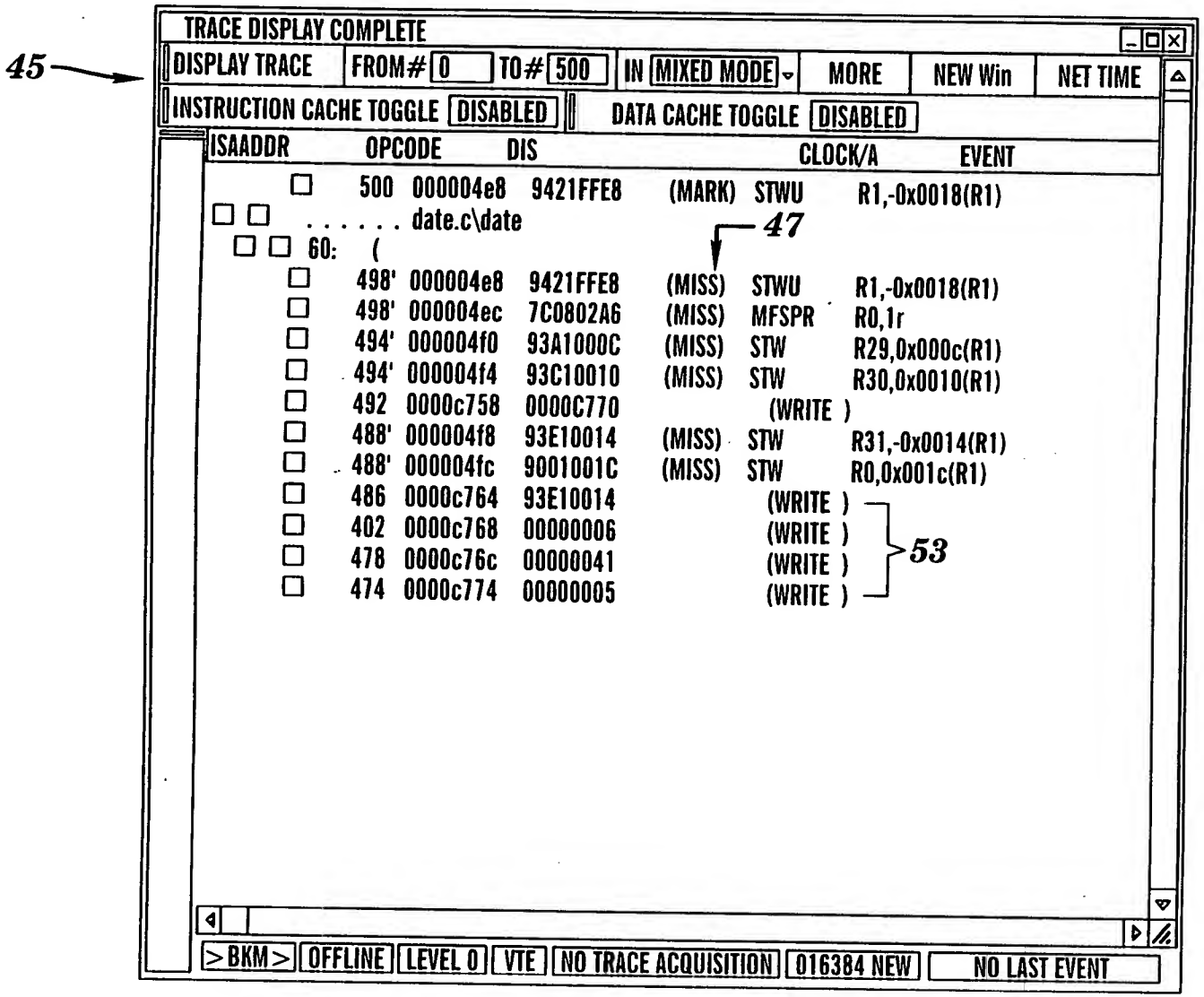
45
TRACE DISPLAY COMPLETE
DISPLAY TRACE
FROM# 0
TO# 500
IN MIXED MODE
MORE
NEW Win
NET TIME
INSTRUCTION CACHE TOGGLE DISABLED
DATA CACHE TOGGLE DISABLED
ISAADDR OPCODE DIS CLOCK/A EVENT
500 000004e8 9421FFE8 (MARK) STWU R1,-0x0018(R1)
. . . . . date.c\date
47
60: (
498' 000004e8 9421FFE8 (MISS) STWU R1,-0x0018(R1)
498' 000004ec 7C0802A6 (MISS) MFSPR R0,1r
494' 000004f0 93A1000C (MISS) STW R29,0x000c(R1)
494' 000004f4 93C10010 (MISS) STW R30,0x0010(R1)
492 0000c758 0000C770 (WRITE)
488' 000004f8 93E10014 (MISS) STW R31,-0x0014(R1)
488' 000004fc 9001001C (MISS) STW R0,0x001c(R1)
486 0000c764 93E10014 (WRITE)
402 0000c768 00000006 (WRITE)
478 0000c76c 00000041 (WRITE)
474 0000c774 00000005 (WRITE)
53
>BKM>
OFFLINE
LEVEL 0
VTE
NO TRACE ACQUISITION
016384 NEW
NO LAST EVENT

FIG. 5

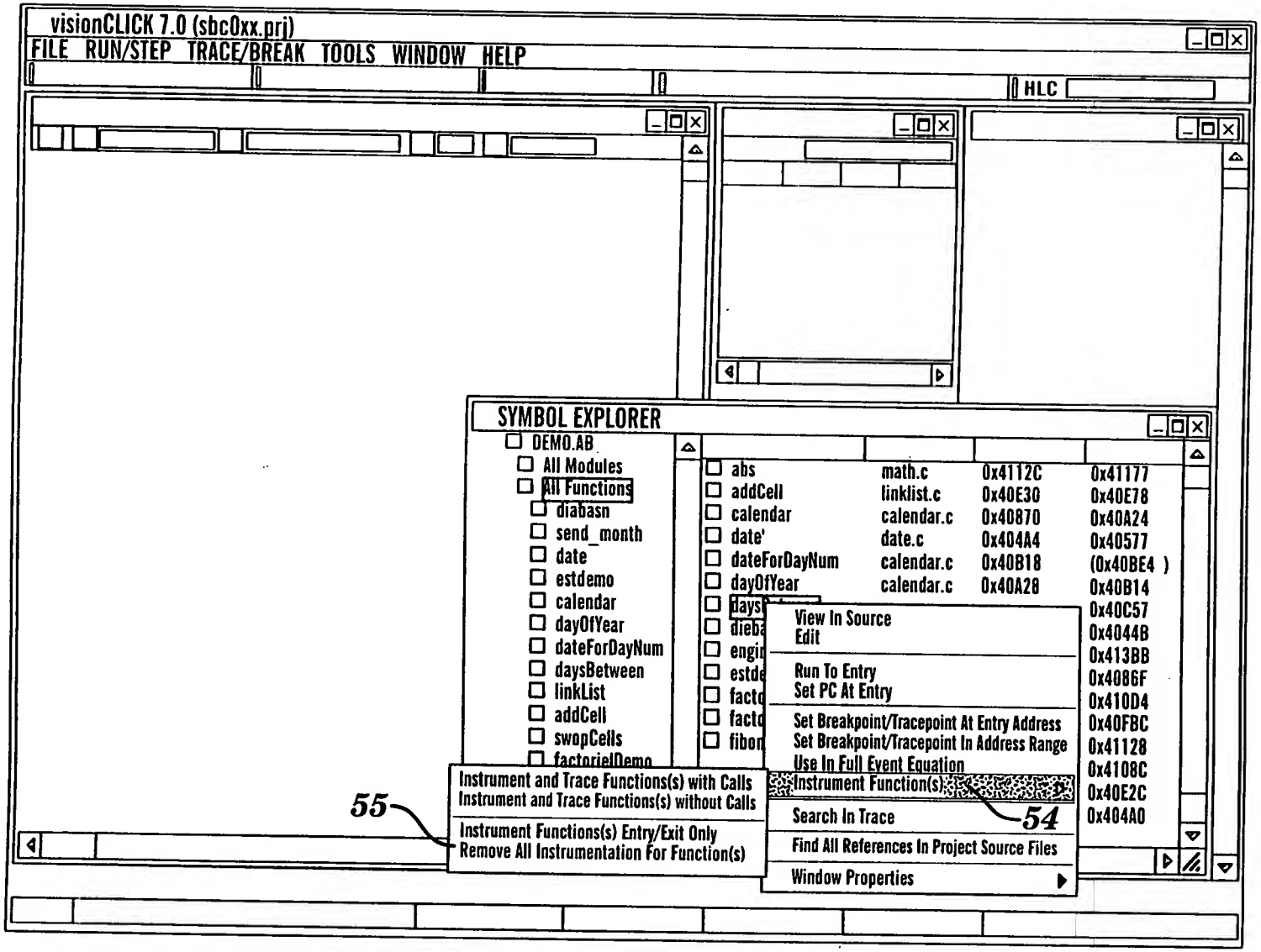
visionCLICK 7.0 (sbc0xx.prj)
FILE RUN/STEP TRACE/BREAK TOOLS WINDOW HELP
HLC
SYMBOL EXPLORER
DEMO.AB
All Modules
All Functions
diabasn
send_month
date
estdemo
calendar
dayOfYear
dateForDayNum
daysBetween
linkList
addCell
swopCells
factorielDemo
abs math.c 0x4112C 0x41177
addCell linklist.c 0x40E30 0x40E78
calendar calendar.c 0x40870 0x40A24
date' date.c 0x404A4 0x40577
dateForDayNum calendar.c 0x40B18 (0x40BE4)
dayOfYear calendar.c 0x40A28 0x40B14
0x40C57
0x4044B
0x413BB
0x4086F
0x410D4
0x40FBC
0x41128
0x4108C
0x40E2C
0x404A0
View In Source
Edit
Run To Entry
Set PC At Entry
Set Breakpoint/Tracepoint At Entry Address
Set Breakpoint/Tracepoint In Address Range
Use In Full Event Equation
Instrument Function(s)
Search In Trace
Find All References In Project Source Files
Window Properties
Instrument and Trace Functions(s) with Calls
Instrument and Trace Functions(s) without Calls
Instrument Functions(s) Entry/Exit Only
Remove All Instrumentation For Function(s)
55
54

FIG. 6

PATENT APPLICATION

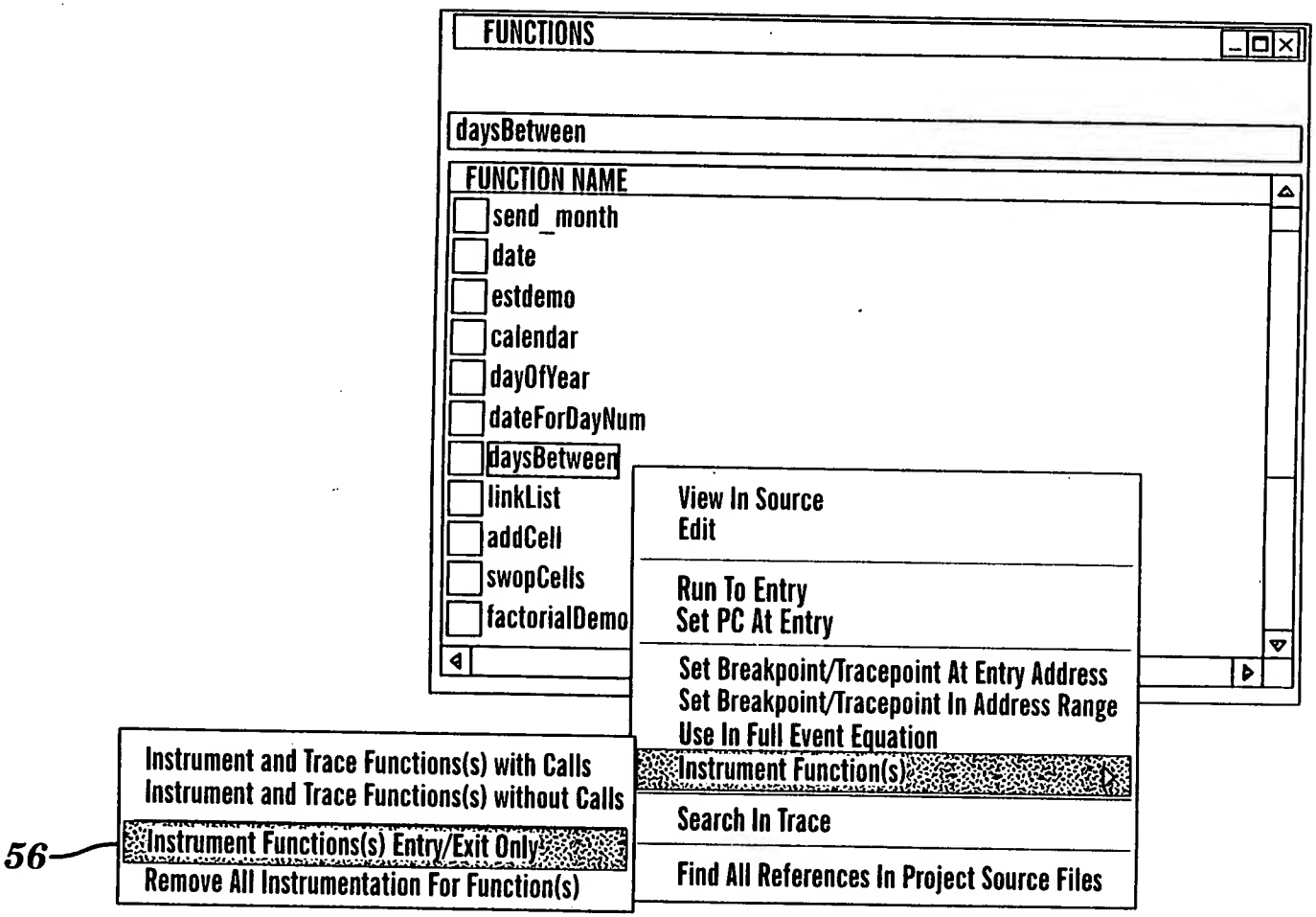

FIG. 7

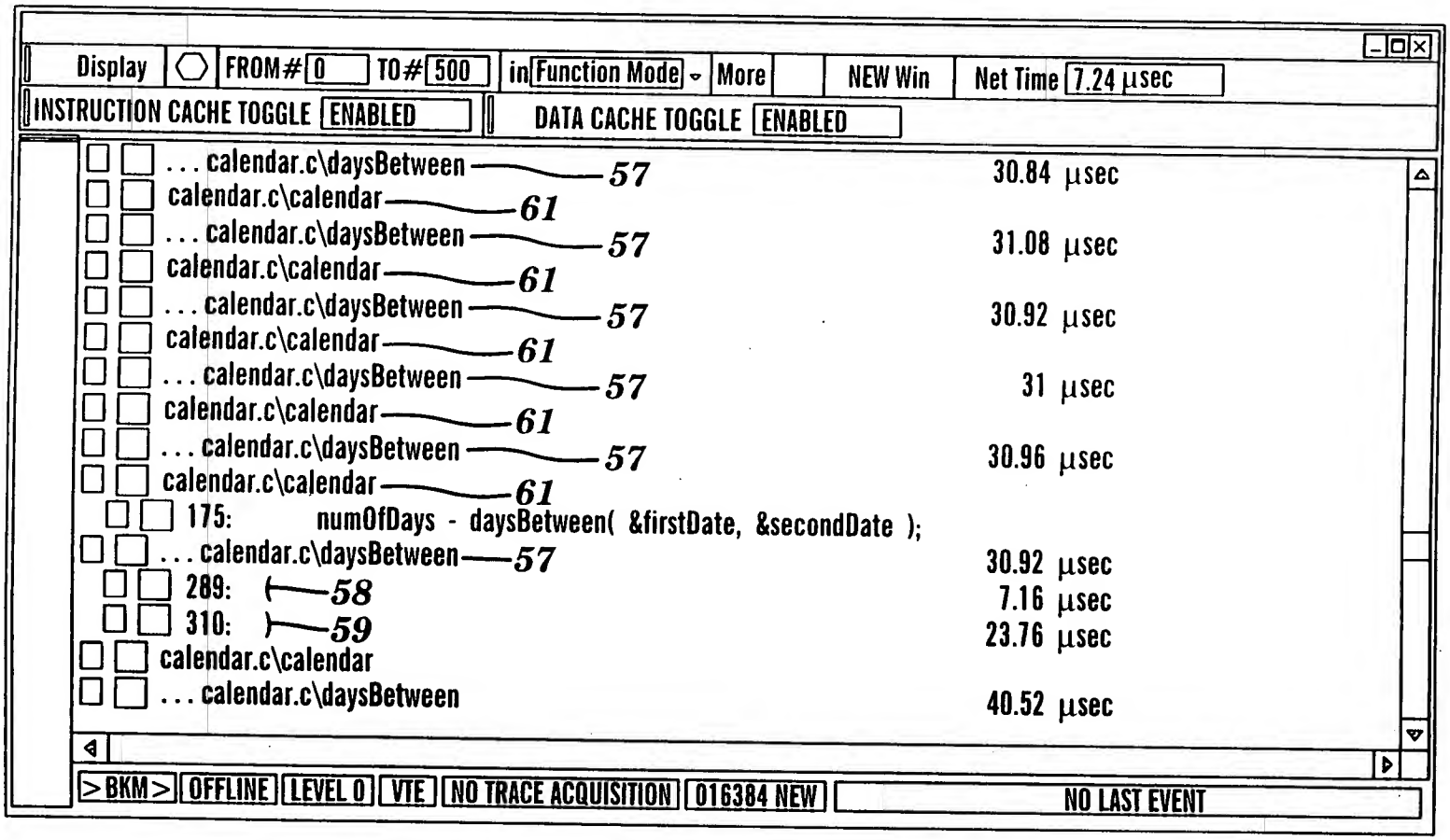
Display
FROM# 0
TO# 500
in Function Mode
More
NEW Win
Net Time 7.24 µsec
INSTRUCTION CACHE TOGGLE ENABLED
DATA CACHE TOGGLE ENABLED
. . . calendar.c\daysBetween 57 30.84 µsec
calendar.c\calendar 61
. . . calendar.c\daysBetween 57 31.08 µsec
calendar.c\calendar 61
. . . calendar.c\daysBetween 57 30.92 µsec
calendar.c\calendar 61
. . . calendar.c\daysBetween 57 31 µsec
calendar.c\calendar 61
. . . calendar.c\daysBetween 57 30.96 µsec
calendar.c\calendar 61
175: numOfDays - daysBetween(&firstDate, &secondDate);
. . . calendar.c\daysBetween 57 30.92 µsec
289: 58 7.16 µsec
310: 59 23.76 µsec
calendar.c\calendar
. . . calendar.c\daysBetween 40.52 µsec
>BKM> OFFLINE LEVEL 0 VTE NO TRACE ACQUISITION 016384 NEW NO LAST EVENT

FIG. 8

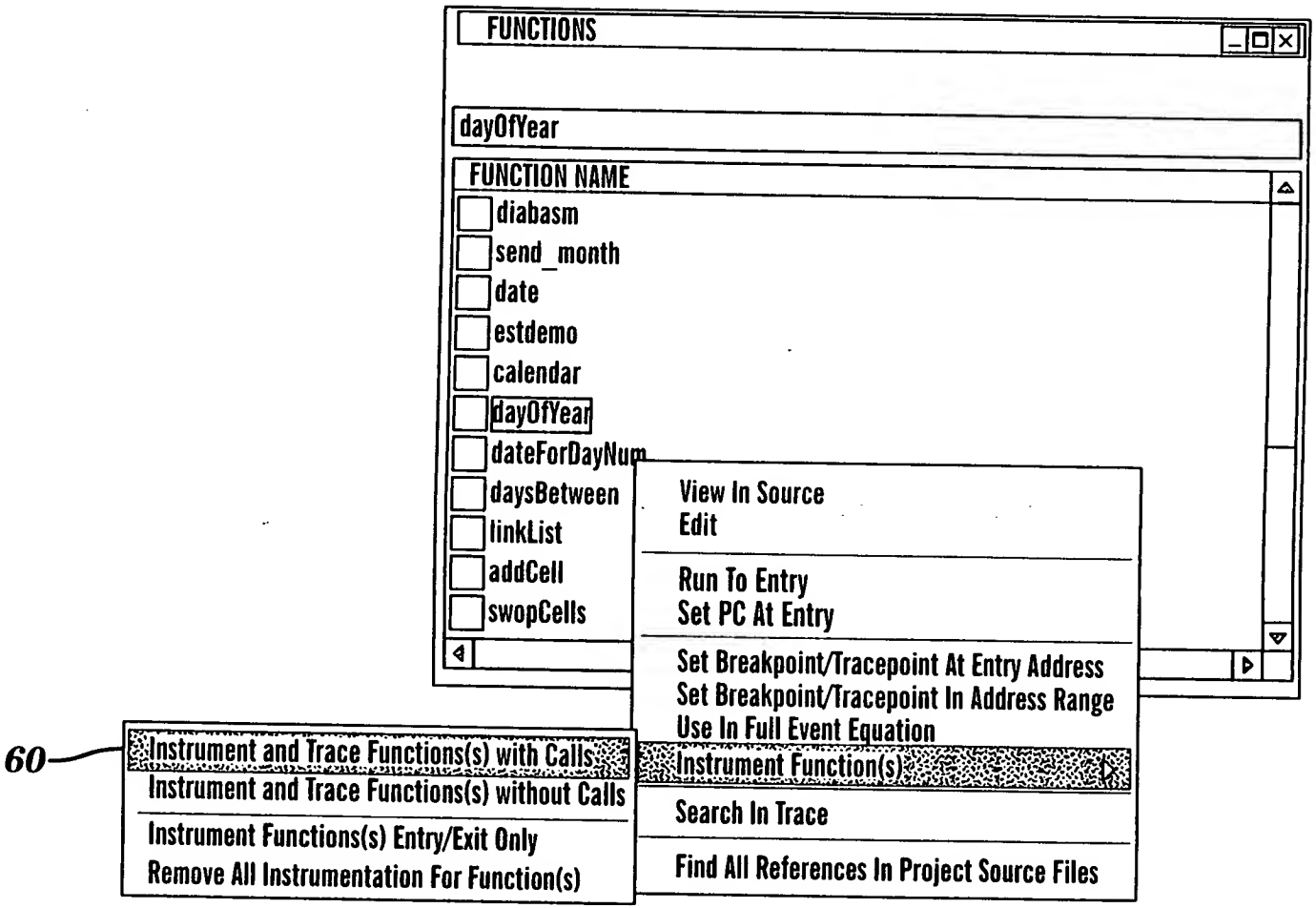
FUNCTIONS
dayOfYear
FUNCTION NAME
diabasm
send_month
date
estdemo
calendar
dayOfYear
dateForDayNum
daysBetween
linkList
addCell
swopCells
View In Source
Edit
Run To Entry
Set PC At Entry
Set Breakpoint/Tracepoint At Entry Address
Set Breakpoint/Tracepoint In Address Range
Use In Full Event Equation
Instrument Function(s)
Search In Trace
Find All References In Project Source Files
60
Instrument and Trace Functions(s) with Calls
Instrument and Trace Functions(s) without Calls
Instrument Functions(s) Entry/Exit Only
Remove All Instrumentation For Function(s)

FIG. 9

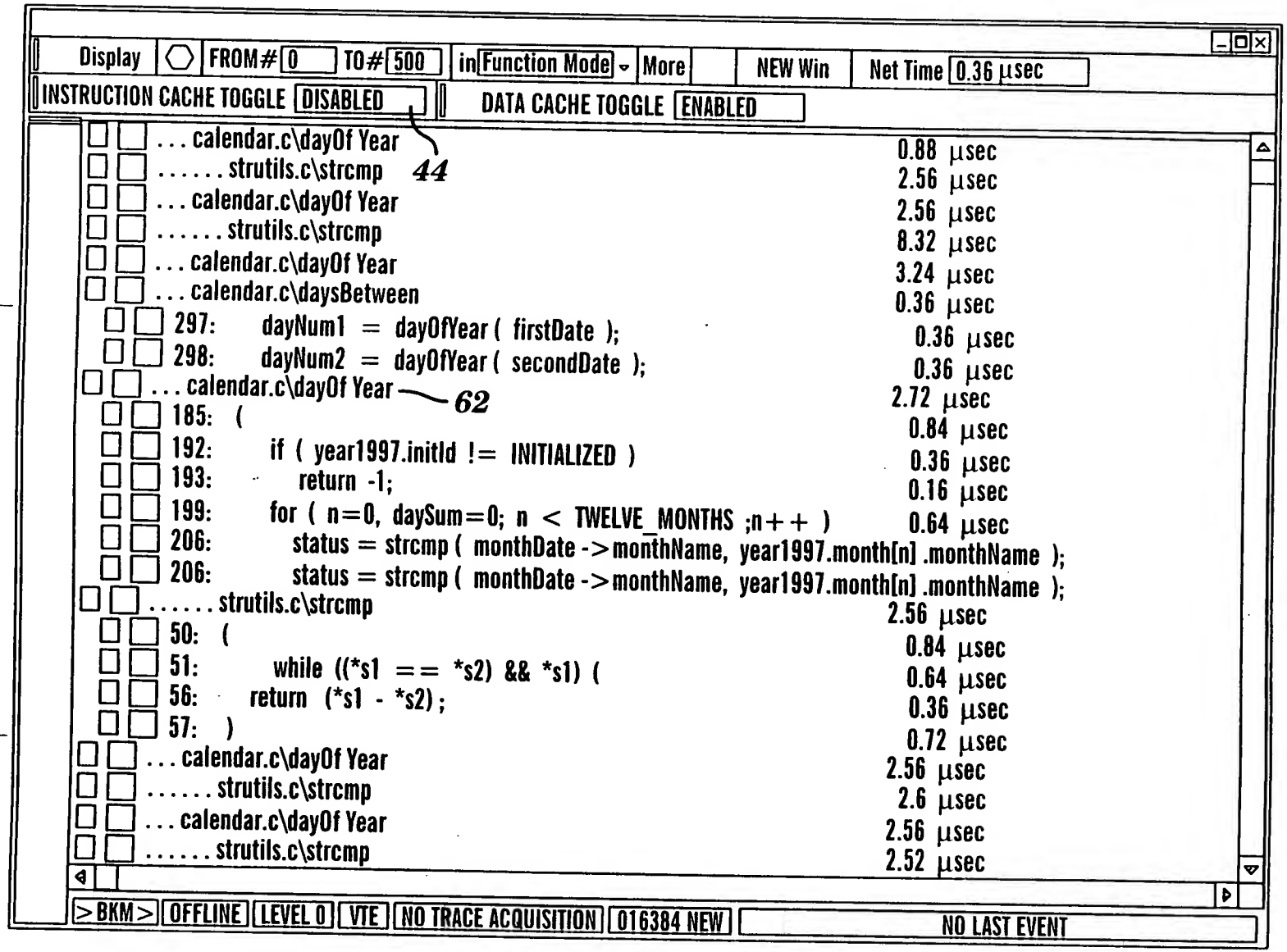
Display
FROM# 0
TO# 500
in Function Mode
More
NEW Win
Net Time 0.36 µsec
INSTRUCTION CACHE TOGGLE DISABLED
DATA CACHE TOGGLE ENABLED
44
62
64
. . . calendar.c\dayOf Year 0.88 µsec
. . . . . strutils.c\strcmp 2.56 µsec
. . . calendar.c\dayOf Year 2.56 µsec
. . . . . strutils.c\strcmp 8.32 µsec
. . . calendar.c\dayOf Year 3.24 µsec
. . . calendar.c\daysBetween 0.36 µsec
297: dayNum1 = dayOfYear (firstDate); 0.36 µsec
298: dayNum2 = dayOfYear (secondDate); 0.36 µsec
. . . calendar.c\dayOf Year 2.72 µsec
185: (0.84 µsec
192: if (year1997.initId != INITIALIZED) 0.36 µsec
193: return -1; 0.16 µsec
199: for (n=0, daySum=0; n < TWELVE_MONTHS ;n++) 0.64 µsec
206: status = strcmp (monthDate->monthName, year1997.month[n] .monthName);
206: status = strcmp (monthDate->monthName, year1997.month[n] .monthName);
. . . . . strutils.c\strcmp 2.56 µsec
50: (0.84 µsec
51: while ((*s1 == *s2) && *s1) (0.64 µsec
56: return (*s1 - *s2); 0.36 µsec
57:) 0.72 µsec
. . . calendar.c\dayOf Year 2.56 µsec
. . . . . strutils.c\strcmp 2.6 µsec
. . . calendar.c\dayOf Year 2.56 µsec
. . . . . strutils.c\strcmp 2.52 µsec
>BKM> OFFLINE LEVEL 0 VTE NO TRACE ACQUISITION 016384 NEW NO LAST EVENT

FIG. 10

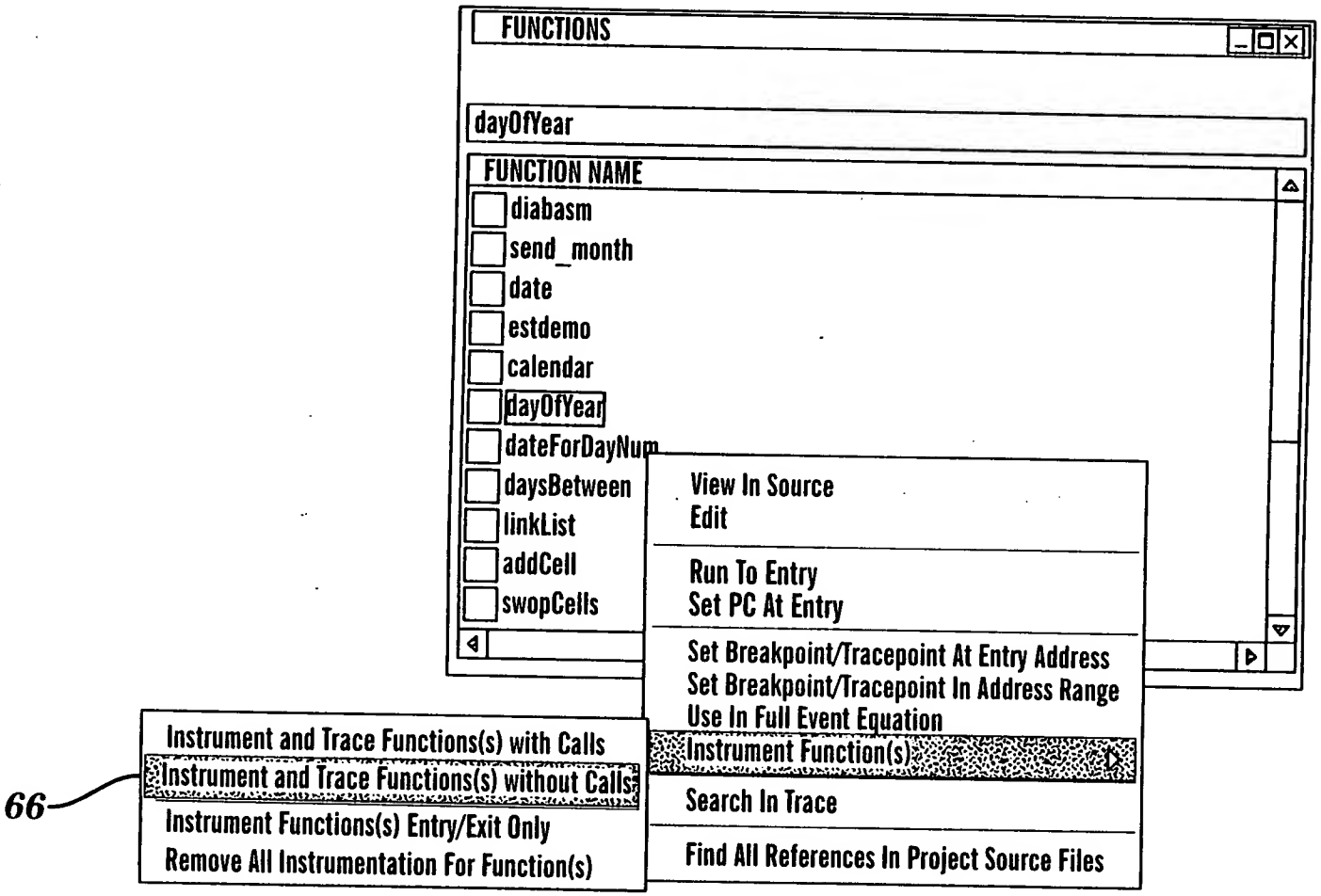
FUNCTIONS
dayOfYear
FUNCTION NAME
diabasm
send_month
date
estdemo
calendar
dayOfYear
dateForDayNum
daysBetween
linkList
addCell
swopCells
View In Source
Edit
Run To Entry
Set PC At Entry
Set Breakpoint/Tracepoint At Entry Address
Set Breakpoint/Tracepoint In Address Range
Use In Full Event Equation
Instrument Function(s)
Search In Trace
Find All References In Project Source Files
Instrument and Trace Functions(s) with Calls
Instrument and Trace Functions(s) without Calls
Instrument Functions(s) Entry/Exit Only
Remove All Instrumentation For Function(s)
66

FIG. 11

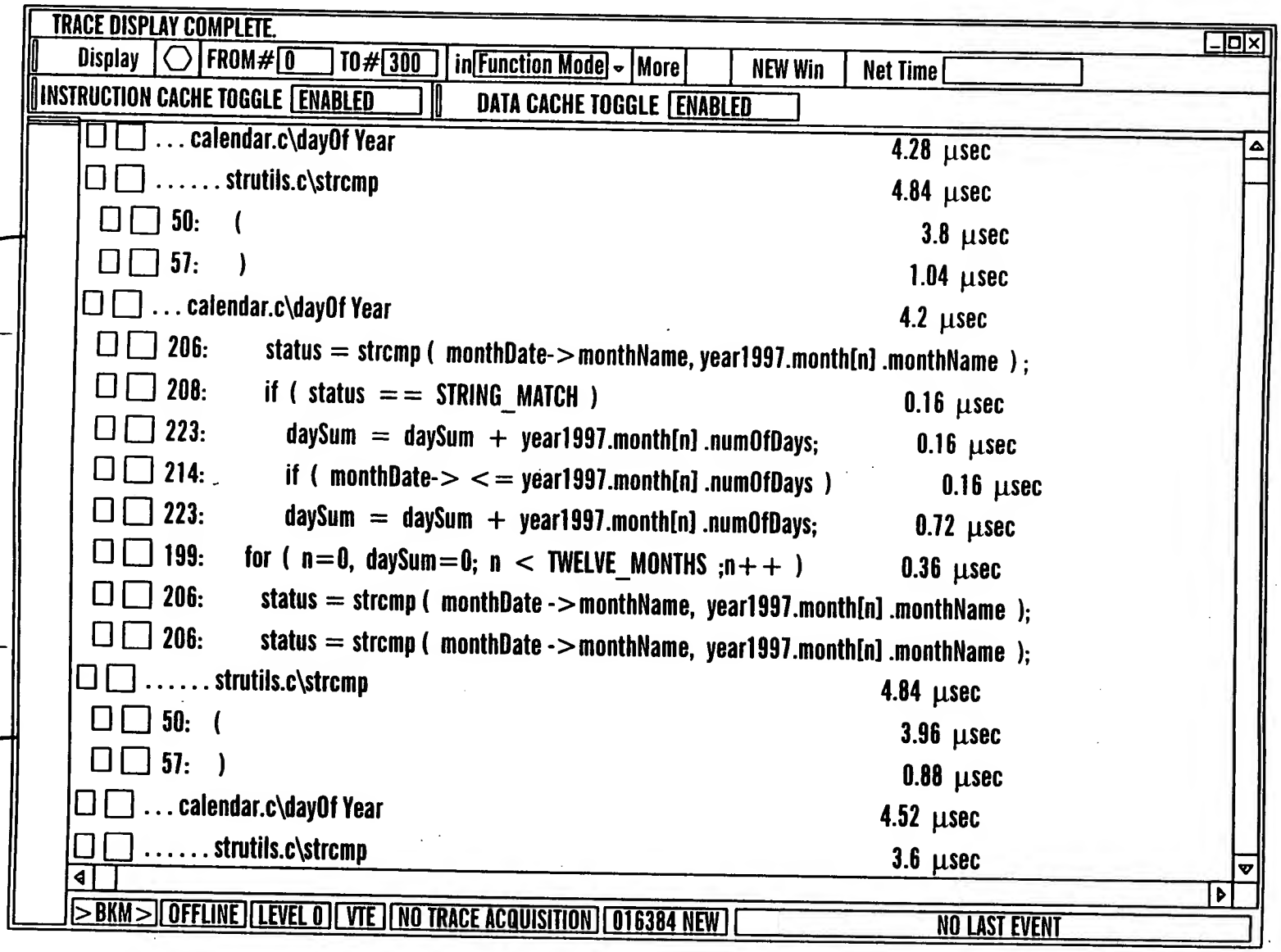
TRACE DISPLAY COMPLETE.
Display
FROM# 0
TO# 300
in Function Mode
More
NEW Win
Net Time
INSTRUCTION CACHE TOGGLE ENABLED
DATA CACHE TOGGLE ENABLED
. . . calendar.c\dayOf Year 4.28 µsec
. . . . . strutils.c\strcmp 4.84 µsec
50: (3.8 µsec
57:) 1.04 µsec
. . . calendar.c\dayOf Year 4.2 µsec
206: status = strcmp (monthDate->monthName, year1997.month[n] .monthName) ;
208: if (status == STRING_MATCH) 0.16 µsec
223: daySum = daySum + year1997.month[n] .numOfDays; 0.16 µsec
214: if (monthDate-> <= year1997.month[n] .numOfDays) 0.16 µsec
223: daySum = daySum + year1997.month[n] .numOfDays; 0.72 µsec
199: for (n=0, daySum=0; n < TWELVE_MONTHS ;n++) 0.36 µsec
206: status = strcmp (monthDate ->monthName, year1997.month[n] .monthName);
206: status = strcmp (monthDate ->monthName, year1997.month[n] .monthName);
. . . . . strutils.c\strcmp 4.84 µsec
50: (3.96 µsec
57:) 0.88 µsec
. . . calendar.c\dayOf Year 4.52 µsec
. . . . . strutils.c\strcmp 3.6 µsec
>BKM> OFFLINE LEVEL 0 VTE NO TRACE ACQUISITION 016384 NEW NO LAST EVENT
68
72
70

FIG. 12

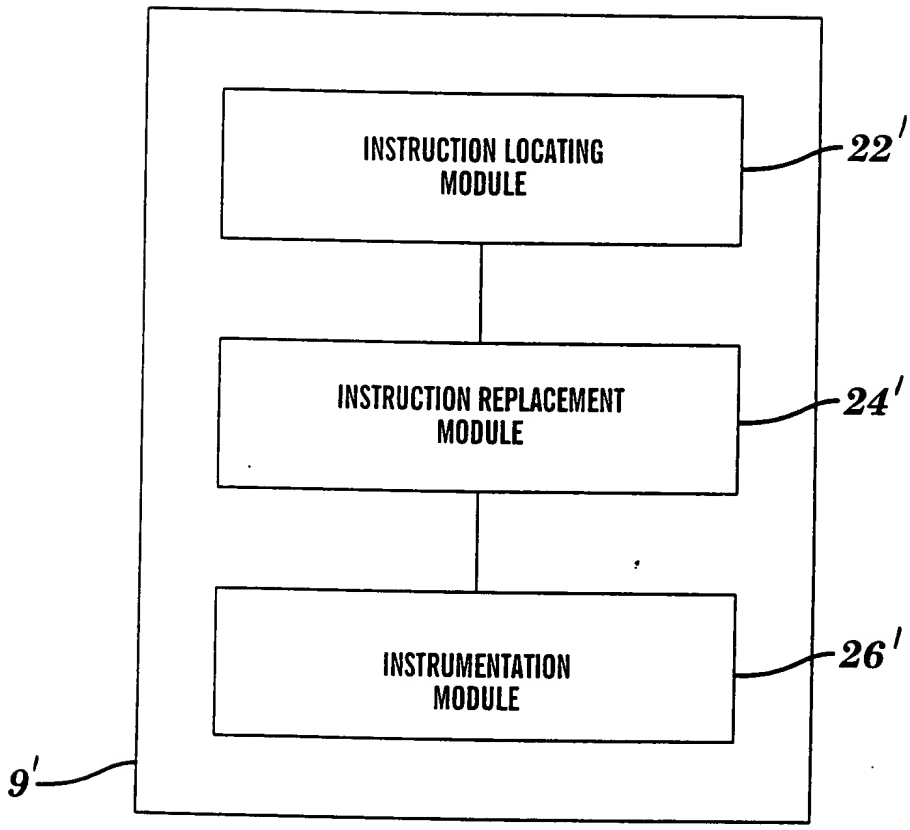
INSTRUCTION LOCATING MODULE
22'
INSTRUCTION REPLACEMENT MODULE
24'
INSTRUMENTATION MODULE
26'
9'

FIG. 13

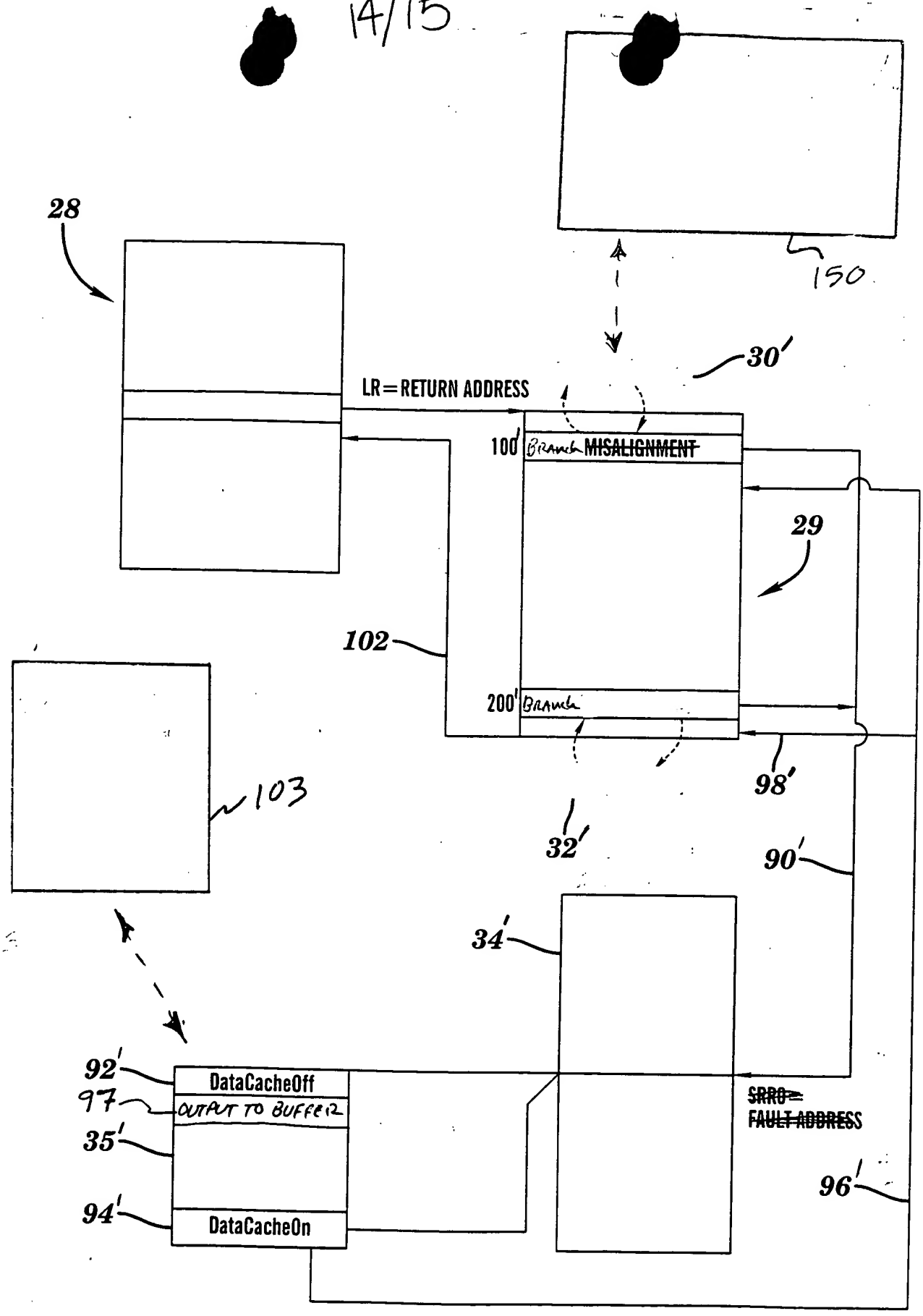
28
150
30'
LR = RETURN ADDRESS
100'
Branch
MISALIGNMENT
29
102
200'
Branch
103
98'
32'
90'
34'
92'
DataCacheOff
97
OUTPUT TO BUFFER
35'
94'
DataCacheOn
SRR0 =
FAULT ADDRESS
96'

FIG. 14

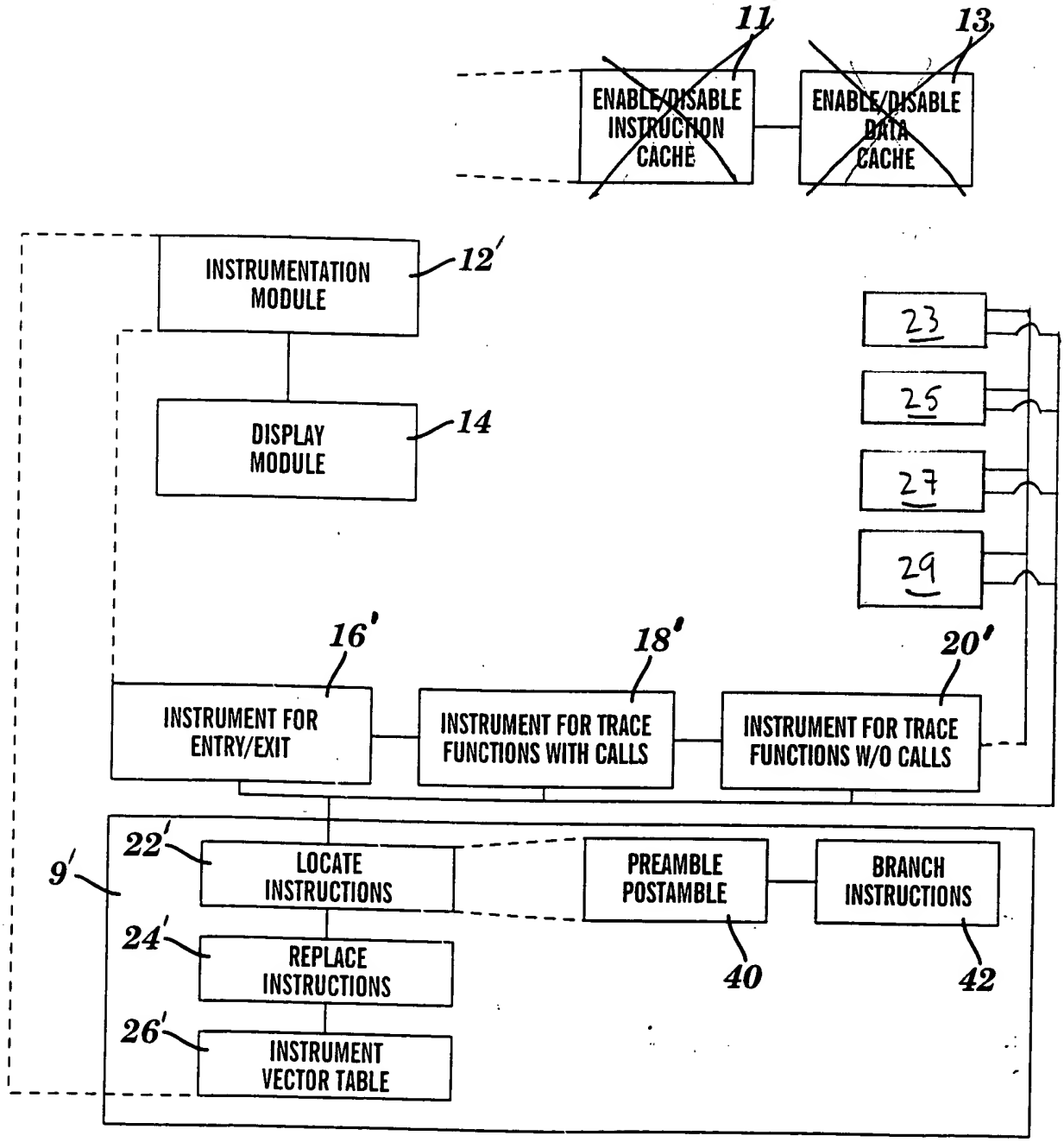
11
13
ENABLE/DISABLE INSTRUCTION CACHE
ENABLE/DISABLE DATA CACHE
INSTRUMENTATION MODULE
12'
DISPLAY MODULE
14
23
25
27
29
16'
18'
20'
INSTRUMENT FOR ENTRY/EXIT
INSTRUMENT FOR TRACE FUNCTIONS WITH CALLS
INSTRUMENT FOR TRACE FUNCTIONS W/O CALLS
9'
22'
LOCATE INSTRUCTIONS
24'
REPLACE INSTRUCTIONS
26'
INSTRUMENT VECTOR TABLE
PREAMBLE POSTAMBLE
40
BRANCH INSTRUCTIONS
42

FIG. 15